



AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC) MEETING

December 9, 2021***1:00 PM – 4:00 PM

- Welcome and Introductions
 - Federal Advisory Committee Act (FACA) Statement
 - Ratification of Minutes
 - Status Reports
 - ARAC
 - Airman Certification System Working Group – Mr. David Oord
 - ❖ Call to Action (CtA) Subgroup (SG) (Present Recommendation Report to ARAC: 6/2022)
 - ❖ Expanded tasks of Sport Pilot and Recreational Pilot certificates and all additional remaining category and class pilot certificates and ratings (Present Recommendation Report to ARAC: 6/2022)
 - Part 145 Working Group – Ms. Sarah McLeod
 - ❖ Final Report (Present Recommendation Report to ARAC: 6/2022)
 - Training Standardization Working Group – Mr. Brian Koester
 - ❖ Addendum Recommendation Report (Present to ARAC: 12/2021)
 - Transport Airplane and Engine (TAE) Subcommittee – Mr. Keith Morgan
 - Flight Test Harmonization Working Group – Mr. Brian P. Lee
 - ❖ Topic 16 Handling Qualities Rating Method (HQRM) (Present Recommendation Report to ARAC: 6/2022)
 - ❖ Phase 4 (Present Recommendation Report to ARAC: 6/2022)
 - Transport Airplane Metallic and Composite Structures Working Group – Mr. Doug Jury
 - ❖ Repeat Inspections and Crack Interaction (Present Recommendation Report to ARAC: 3/2022)
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- Ice Crystals Icing Working Group (Present Recommendation Report to ARAC: 6/2022 – Ms. Melissa Bravin and Mr. Allan van de Wall
- Avionics System Harmonization Working Group – Mr. Clark Badie
 - ❖ Alerts for New Airplane Designs (Present Recommendation Report to ARAC: 6/2022)
- Any Other Business
 - FAA update on regulatory activities
 - Fiscal Year 2022 Meeting Dates
 - Thursday, December 9, 2021
 - Thursday, March 17, 2022
 - Thursday, June 16, 2022
 - Thursday, September 8, 2022

ARAC agendas, meeting minutes, and reports are available on the FAA's committee website at https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/1

DRAFT AVIATION RULEMAKING ADVISORY COMMITTEE

RECORD OF MEETING

MEETING DATE: September 16, 2021

MEETING TIME: 1:00 PM EDT

LOCATION: The Aviation Rulemaking Advisory Committee (ARAC) held a “virtual” meeting via Zoom.

PUBLIC

ANNOUNCEMENT: The Federal Aviation Administration (FAA) provided notice to the public of this ARAC meeting in a *Federal Register* notice published on July 19, 2021 (86 FR 38178).

ATTENDEES: **Committee Members**

Yvette A. Rose	Cargo Airline Association (CAA) <i>ARAC Chair</i>
David Oord	Lilium <i>ARAC Vice Chair</i> and Airman Certification Systems Working Group Chair
Justin Barkowski	American Association of Airport Executives (AAAE)
Michelle Betcher	Airline Dispatchers Federation (ADF)
Tom Charpentier	Experimental Aircraft Association (EAA)
Ambrose Clay	National Organization to Insure a Sound Controlled Environment (N.O.I.S.E.)
Chris Cooper	Aircraft Owners and Pilots Association (AOPA)
Gail Dunham	National Air Disaster Alliance Foundation (NADAF)
Paul Hudson	FlyersRights
Randy Kenagy	Air Line Pilots Association (ALPA)
Sarah MacLeod	Aeronautical Repair Station Association (ARSA)
Justin Madden	Aircraft Mechanics Fraternal Association (AMFA)
Keith Morgan	Pratt & Whitney Chair of the Transport Aircraft and Engine (TAE) Subcommittee
Richard Peri	Aircraft Electronics Association (AEA)

Leslie Riegler	Aerospace Industries Association (AIA)
Larry Rooney	Coalition of Airline Pilots Association (CAPA)
Bill Whyte	Regional Airline Association (RAA)
Christopher Witkowski	Association of Flight Attendants
Attendees	
Clark Badie	Federal Express (FedEx)
Stephen Blunk	Public Citizen
Eric Chesmar	United Airlines
Maryanne DeMarco	CAPA
Robert Ganley	Public Citizen
Kevin Hancock	Public Citizen
Linda Jahner	Public Citizen
Doug Jury	Delta Air Lines <i>Transport Aircraft Metallic and Composite Structures Working Group Chair</i>
Brian Koester	NBAA
Josh Larson	ALPA
Brian Lee	Boeing Company <i>Flight Test Harmonization Working Group Chair</i>
Jerod Rhodes	UPS
Dean Thompson	Public Citizen
Edgar Valdez	UPS Flight Forward Inc.
FAA	
Timothy Adams	<i>Designated Federal Officer (DFO), Office of Rulemaking (ARM)</i>
Angela Anderson	ARM
Kathleen Bradshaw	Aircraft Certification Service (AIR)
Paul Cloutier	Office of Flight Standards Service (FS)
Thuy Cooper	ARM
Jim Crotty	ARM
Thomas Cuddy	Office of Aviation Policy and Planning (APO)

Mary Margaret Daniel	ARM
Brian Davis	AFS
Richard Doan	Office of General Counsel (AGC)
Aliah Duckett	ARM
Larry Ilcewicz	AIR
Daniel Leach	APO
Suzanne Masterson	AIR
Cheryl Miner	APO
Mallory Naill	AIR
Paul Preidecker	AFS (FAA contractor)
Alberto Ramon	APO
Puja Sardana	The Regulatory Group/FAA contractor
Bill Schinstock	AIR
Mary Schooley	AIR
Tim Shaver	AFS
Todd Steiner	APO
Alan Strom	AIR
Joshua Tarkington	AFS
George Thurston	APO
Alana Zautner	AIR

Welcome and Introduction

Mr. Tim Adams, Designated Federal Officer (DFO), called the meeting to order at 1:03 pm. After introducing himself, Mr. Adams reviewed features of zoom, noted that the meeting was being recorded, and asked that participants who dialed-in using a phone number to identify themselves through Zoom or by emailing their information to 9-AWA-ARAC@faa.gov to record their attendance.

Ms. Yvette Rose, ARAC Chair, confirmed ARAC members in attendance based on the participant list provided by Zoom. Ms. Rose welcomed everyone to the meeting and thanked the FAA and supporting staff for their efforts in conducting these meetings virtually and accurately tracking nonmember attendance and minutes.

Mr. Adams read the required FACA statement (Title 5, United States Code (5 U.S.C.); Appendix 2 (2007)). He stated that members of the public may address the ARAC with the permission of the Chair.

Ratification of Minutes

Ms. Rose asked for a motion to accept the minutes from the June 17, 2021¹, ARAC meeting. Mr. Larry Rooney motioned to accept the minutes, and Mr. Keith Morgan seconded the motion. ARAC voted to ratify the minutes with no objections.

Status Reports

A copy of the September 16, 2021, meeting packet, which includes the presentations, can be found at:

https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/September%202021%20ARAC%20Meeting%20Packet.pdf.

Airman Certification Systems Working Group (ACSWG)

Ms. Rose asked Mr. David Oord, ACSWG Chair, to provide the working group's status report. The update included an overview of membership, a summary of tasking, a review of the schedule, the status of tasking, and areas for ARAC consideration.

Mr. Oord noted that membership has largely stayed the same with consistent engagement from the FAA and from the industry. He said that the summary of tasking had not changed. Mr. Oord explained that the schedule is on track and a comprehensive interim report was submitted in June 2018 with subsequent interim reports consistently submitted since then. He stated that the ACSWG final report was originally due on December 1, 2021; however, the working group was granted a 6- month extension until June 2022 to align with the call to action tasking.

Mr. Oord provided an update on the group's tasking and progress, including details of the group's call to action final report. He expressed frustration with the FAA's delay in publishing Airman Certification Systems standards, guidance, and recommendations (approximately 20 documents). Mr. Oord noted the subgroup's need for a new path forward, specifically the effective, efficient and transparent maintenance of the publication of the ACS documents. He noted the publishing of these documents is important for the group's work to move forward.

Ms. Rose asked if any members had questions. Ms. Sarah MacLeod asked for clarification on the working group's current area of consideration for ARAC. Mr. Oord noted that the group would like ARAC to accept the interim recommendation report from

¹ The June 17, 2021, meeting minutes can be found at:
https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ARAC%20June%202021%20Meeting%20Packet.pdf

the call to action subgroup to encourage the FAA to take further action to publish ACS standards.

Mr. Justin Madden motioned to accept the report. Ms. MacLeod seconded the motion. Discussions continued around the report and frustrations with FAA's lack of action on ACS standards. The specific language of the report was analyzed amongst ARAC members, including options for amended verbiage and clarifying specifically what the ARAC was asking in the call to action report. Mr. Kenagy made a motion for an action item to the working group to collectively form and vote on a specific message to send to the FAA. Mr. Ric Peri suggested asking for a formal briefing from FAA on ACS to incorporate into the next ARAC meeting agenda. Ms. MacLeod agreed and noted that the agency asked for this information from the industry, and the industry needs feedback to move forward. She also requested that the agency provide clarification on the meaning of ex-parte communication.

ARAC voted to ask FAA for a briefing on the status of the submitted ACS recommendation reports and the path forward. ARAC requested the FAA brief them at the December meeting.

Ms. Rose noted that she would use information from the discussion in the cover letter she transmits to the FAA when submitting the interim draft report.

Part 145 Working Group

Ms. Rose asked Ms. MacLeod, the Part 145 Working Group Chair, to provide the working group's status report.

Ms. MacLeod noted that the final report is due in December 2021, however due to personal reasons, the group requested a 6-month extension from the FAA. She explained the progress made on the executive means of compliance work and the path leading to the final report.

Ms. Rose thanked Ms. MacLeod for the update and noted the FAA did not object to the extension. Mr. David Oord motioned to extend the due date to June 2022, and Mr. Madden seconded the motion. ARAC voted to grant the extension with no objections.

Training Standardization Working Group (TSWG)

Ms. Rose asked Mr. Brian Koester, TSWG Chair, to provide the working group's status report. The update included an overview of membership, a summary of tasking, a review of the schedule, the status of tasking, and areas for ARAC consideration.

Mr. Koester reviewed membership (noting some changes with FAA partners), summarized the tasking, noted the schedule, and presented the order in which the group plans to complete the tasks. He explained the taskings and the goal of standardizing part 135 curriculum guided by Advisory Circular 142-1, which are aircraft, or series of

aircraft, that are used in Part 135 and trained at 142 training centers . Mr. Koester stated that ARAC approved the recommendation report at the June 2021 meeting.

Mr. Koester reviewed the schedule and the progress of work that met each deadline. He explained that various items under the status of tasking have been assigned to different action teams. He specifically described the topics for each action team. Mr. Koester noted that there were no areas for ARAC consideration at this time.

Ms. Rose thanked Mr. Koester and asked if any ARAC members had questions. Mr. Oord spoke about clarifications with overlap of other standards, and Mr. Koester thanked him for his feedback.

Transport Airplane and Engine (TAE) Subcommittee

Ms. Rose asked Mr. Keith Morgan, the TAE Subcommittee Chair, to provide the TAE Subcommittee status report update.

Mr. Morgan stated that there are currently four active TAE Subcommittee working groups: Flight Test Harmonization (FTH), Transport Airplane Metallic and Composite Structure (TAMCS), Ice Crystal Icing (ICI), and Avionic Systems Harmonization (ASH).

Mr. Morgan reviewed the schedule of meetings and deliverables.

Flight Test Harmonization Working Group (FTHWG)

Mr. Morgan reviewed membership and stated that the FTHWG has been working on phase 4 of the tasking, low energy alerting. He described a breakdown of the tasks and how the work is being delegated. He reviewed the schedule, stated that the status of tasking is on track, and noted that the group does not need anything from ARAC at this time. Mr. Morgan mentioned some struggles due to COVID-19 and only being able to meet virtually.

Ms. Rose asked a question relating to topic 16, and Mr. Morgan explained that was part of the original 6 topics of tasking. Ms. Rose asked the FAA to keep note of the working group's schedule.

Transport Aircraft Metallic and Composite Structures Working Group (TAMCSWG)

Mr. Morgan reviewed the TAMCSWG membership, tasking, and schedule. Mr. Morgan summarized the original tasking and described the extended topics that were added. He reviewed the schedule and the group's progress. Mr. Morgan noted that the group may need an extension next year.

Ice Crystals Icing Working Group (ICIWG)

Mr. Morgan stated that the ICIWG membership nor the status of tasking has changed. He reviewed the schedule, which includes publishing an interim report mid-2022 and submitting a final report to FAA by December 2023. He noted that the working group has regular meetings and is making good progress. Mr. Morgan stated that there were no areas for ARAC consideration at this time.

Avionics System Harmonization Working Group (ASHWG)

Mr. Morgan summarized the ASHWG's work plan and the questions they hope to answer in their tasking. He noted that the group meets regularly, and they hope to have their work completed by the third quarter of 2022. He stated that the ASHWG does not need anything from ARAC at this time.

Ms. Rose asked if all extensions within TAE groups were approved, and Mr. Morgan confirmed they were.

Recommendation Reports

Transport Aircraft Metallic and Composite Structures Working Group (TAMCSWG) Structural Bonding Report

Ms. Rose asked Mr. Doug Jury, the TAMCSWG Chair, to present the recommendation report on structural bonding. Mr. Jury recognized and thanked individuals who contributed to the report. He described the report as an extension of work previously done and submitted to FAA through ARAC.

Mr. Jury described bonded structural integrity properties and primary proposed updates to guidance. He reviewed all changes and emphasized more significant topic areas. He noted some areas of hesitation the group worked through. Mr. Jury continued to explain aspects of the report, including cost benefit analysis.

Mr. Eric Chesmar noted that, in his years of airline experience, this is the best report on structural bonding he has seen. Mr. Jury thanked him and continued to review information including charts on the background of structural bonding and crack interaction. He described the direction and discussions the working group followed and that there is a proposal within the group to provide further technical guidance. Mr. Jury noted the group hopes to have this proposal prepared for the December ARAC meeting.

Mr. Jury reviewed the milestones and deliverables schedule, which included the Structural Damage Capability – Single Load Path report done in 2020, the Structural Bonding report currently being discussed for review, and the Crack Interaction report late 2021 or early 2022.

Ms. Rose thanked Mr. Jury and the group for their report and noted that she believes the information in the report provides much better safety standards for current practices. She also stated that the acknowledgement section was a professional enhancement. Mr.

Ambrose Clay agreed and asked for details on specifics on weak bonds. Mr. Clay questioned if a strain gauge may be built into a bond to report potential failures. Mr. Jury stated that good design practices and proper substantiation are used to detect those in advance of it becoming a major issue.

Ms. Rose asked for a vote on the report. Mr. Morgan motioned to accept the report, and Mr. Kenagy seconded the motion. ARAC voted to accept the report with no objections. Ms. Rose confirmed she would forward the report to the FAA.

Other Business and FAA Updates

Ms. Rose asked Mr. Adams to provide FAA updates. Mr. Adams reminded ARAC that members of the public may submit requests to the ARAC in advanced of the meeting. He noted that the FAA received a written comment from Mr. Mark Blumenthal expressing his concerns about safety related to local zoning ordinances. Although this is not an ARAC issue, the email will be included with today's minutes for reference, and Mr. Adams stated that the email will be forwarded to the appropriate FAA office.

Mr. Adams provided an update on the § 65.101 Repairmen Certificate Portability Working Group, noting that the FAA is preparing the nomination packet for the Deputy Secretary.

Since the June ARAC meeting, the FAA published the following rules -

- Airport Safety Management Systems Supplemental Notice of Proposed Rulemaking – The FAA reopened the comment period for 30 days (comment period closes on September 23, 2021).
- Matternet M2 Rule of Particular Applicability Notice of Proposed Rulemaking – This proposed rulemaking is concerned with the noise certification standards for a particular unmanned aircraft system. The rule published on August 16 and the comment period closes on September 27, 2021.

Mr. Adams noted that the FAA has received inquiries from interested individuals to become ARAC members. He stated the FAA will publish a notice in the Federal Register this fall to solicit nominations for ARAC. He also noted that current members can continue to serve unless replaced or reappointed by the FAA. The FAA will contact current members to gauge their interest in continuing to serve on ARAC.

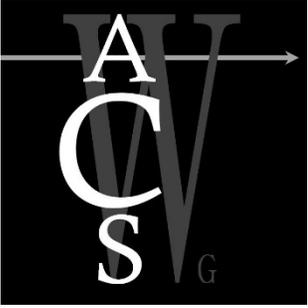
Mr. Adams, on behalf of the FAA, thanked Ms. Rose for serving as ARAC chair since 2017. Mr. Adams highlighted the many accomplishments that ARAC has made under Ms. Rose's leadership, including submitting 21 recommendation reports to FAA. He also announced Mr. Oord will serve as the next ARAC Chair, effective October 5, 2021.

Ms. Rose thanked the FAA and ARAC and asked if anyone had questions before concluding the meeting.

Mr. Paul Hudson requested an update from FAA related to minimum seat size and for emergency evacuation standards. Mr. Hudson additionally noted that the Emergency Evacuation Standards Aviation Rulemaking Committee submitted a recommendation report in May 2020; however, the report has not been released publicly. Mr. Adams noted that the FAA would provide an update in the future.

Adjournment

Ms. Rose adjourned the meeting at 3:04 pm.



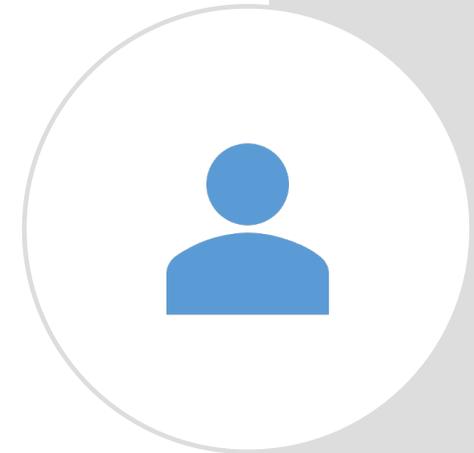
Airman Certification System Working Group Status Report to the Aviation Rulemaking Advisory Committee

David Oord
Working Group Chair

November 20, 2021

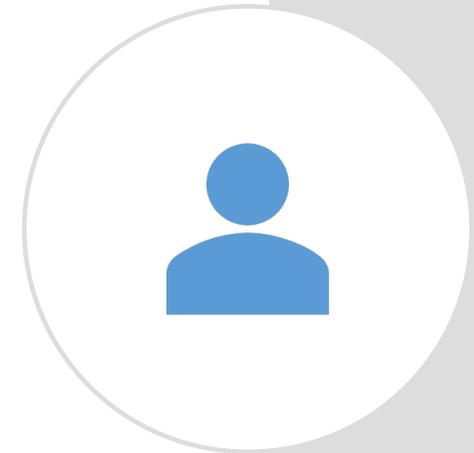
MEMBERS of ACSWG - INDUSTRY

- David Oord, Wisk
- Paul Alp, Jenner & Block
- Cindy Brickner, SSA
- Paul Cairns, ERAU
- Kevin Comstock, ALPA
- Chris Cooper, AOPA
- Mariellen Couppee, Independent
- Eric Crump, Polk State College
- David Dagenais, FSCJ
- Maryanne DeMarco, CAPA
- Anna Dietrich, CAMI
- Rick Durden, Independent
- Megan Eisenstein, NATA
- David Earl, Flight Safety
- Tom Gunnarson, Wisk
- Lauren Haertlein, GAMA
- John Hazlet Jr., RACCA
- Jens Hennig, GAMA
- Chuck Horning, ERAU
- David Jones, Avotek
- John King, King Schools
- Janeen Kochan, ARTS Inc.
- Kent Lovelace, UND
- Justin Madden, AMFA
- John McGraw, NATA
- John McWhinney, King Schools
- Crystal Maguire, ATEC
- Nick Mayhew, L3
- Phillip Poynor, NAFI
- Jimmy Rollison, FedEx
- JR Russell, NBAA
- Mary Schu, Mary Schu Aviation
- Roger Sharp, Independent
- Jackie Spanitz, ASA
- Burt Stevens, CFI Care
- Robert Stewart, Independent
- Tim Tucker, Robinson
- Robert Wright, NBAA
- Donna Wilt, SAFE
- Roger Woods, Leonardo
- Philipp Wynands, Metro Aviation



MEMBERS of ACSWG – FAA SMEs

- Susan Parson
- Barbara Adams
- Bill Anderson
- Robert Burke
- Dennis Byrne
- James Ciccone
- Bryan Davis
- Joel Dickinson
- Mike Duffy
- Troy Fields
- Ramona Fillmore
- Adam Giraldes
- Shawn Hayes
- Vanessa Jamison
- Laurin J. Kaasa
- Jeffrey Kerr
- Ricky Krietemeyer
- Mike Millard
- Anne Moore
- Kevin Morgan
- Margaret Morrison
- Kieran O’Farrell
- Richard Orentzel
- Katie Patrick
- Andrew Pierce
- Robert Reckert
- Jason Smith
- Shelly Waddell Smith
- Jeff Spangler
- Robert Terry
- Matt Waldrop
- Stephanie Williams
- Bill Witzig
- Jimmy Wynne



SUMMARY OF TASKING

- Provide recommendations regarding standards, training guidance, test management, and reference materials for airman certification purposes.
- Continuation of Pilot, Instructor, and Aircraft Mechanic certificates.
- Revisions for Private, Commercial, Remote Pilot certificates and the Instrument Rating.
- Added Sport and Recreational Pilot certificates – airplane.
- Added Private, Commercial, ATP, and Instructor certificates and Instrument Rating in additional aircraft categories–
 - Rotorcraft, powered lift, lighter-than-air, glider, etc.

SCHEDULE

- Interim reports
 - PVT, COM, ATP, Instructor, and AMT certificates and Instrument Rating – no later than June 2018 - complete
- Final recommendation reports no later than June 2022

SCHEDULE

- 2021 Meetings –
 - March 16 (virtual meeting)
 - June 15 (virtual meeting)
 - September 21 (virtual meeting)
 - December 7 (virtual meeting)
- 2022 Meetings – to be scheduled

STATUS OF TASKING

- Continued progress on Standards, Guidance, and Test Management
 - Refinement and improvement of existing Standards
 - ACS code consistency and refinement
 - New test management service
 - Draft Airman Certification Standards
- Call to Action (CtA) Subgroup
 - ACS Mapping and Gap Analysis
 - ACS/PTS success rate comparison
 - Data Collection/Analysis

AREAS of ARAC CONSIDERATION

- **Path forward for new Standards –**
 - Incorporation by Reference (IBR)
 - Role for ACS WG and Industry
 - Timelines

Part 145 Working Group Status Report to the Aviation Rulemaking Advisory Committee

Sarah MacLeod and Ric Peri

Working Group Chairs

December 2021 Meeting

Members of the Part 145 Working Group (Unchanged)

Paul Cloutier, Working Group Representative	FAA—AFS, Repair Station Branch
Brent Hart, Analyst	FAA, ARM
Thuy Cooper, Analyst	FAA, ARM
Justin Smith, Director of Operations	Quality Aviation Instruments, Inc., D/B/A QAI
Craig Fabian, Regulatory Compliance Leader	GE Engines
Sarah MacLeod, Executive Director	Aeronautical Repair Station Association
John Fox, Accountable Manager	United Airlines, Inc.
Joe Sambiasi, Director Airworthiness & Maintenance	General Aviation Manufacturers Association
Jeff Cornell, Senior Director/Quality	Aviation Technical Services
Justin Madden, Legislative Affairs Director	Aircraft Mechanics Fraternal Association (AFMA)
Jeremy Bryck, Senior Director 145 Maintenance	Air Methods Corporation
John Fox, Accountable Manager Senior Manager, Quality Control	United Airlines, Inc.

Members of the Part 145 Working Group (Unchanged)

Richard Macklosky, Manager, Regulatory Management
Civil Aviation

Jeff Eagle, Senior Regulatory Compliance Specialist

Eric M. Monte., Principal Quality Assurance Engineer

David Stapes, Manager, Regulatory Compliance

Richard (Ric) Peri, Vice President Government & Industry
Affairs

Sam Porter, Senior Quality Manager

Stephanie Branscomb, Director of Operations
Quality Manager

Stephen R. Wysong, President

Steven Brewer, Manager Structure Engineering

Bill Hanf, Owner

Samuel Edwards, Administrative Manager

Jeffrey Orth, Senior Regulatory & Compliance Specialist

United Technologies Corporation

United Technologies Corporation/Pratt &
Whitney

Rockwell Collins

Delta TechOps

Aircraft Electronics Association

Sikorsky—A Lockheed Martin Company

Wysong Enterprise

Wysong Enterprise

Kalitta Air

Green Mountain Avionics

Boeing Commercial Airplanes

Boeing Global Services

Recognized Observers to the Part 145 Working Group (Unchanged)

Brian Koester, Manager, Flight Operations & Regulation

Carol Giles, Aircraft Maintenance and Systems Technology Committee Liaison

Art Smith, Vice President-Chief Quality Officer

Steve Douglas, Vice President Certification, Compliance & Safety

Paul Hawthorne, Director Global Support Quality

Gary Daniels, FAA DAR-T DMS Designee

National Business Aircraft Association

National Air Transportation Association

AAR Corporation

Oliver Wyman – CAVOK

Moog

SUMMARY OF TASKING

- Comprehensive review of internal and external guidance material – relate to laws and regulations – on certificating and overseeing all part 145 repair stations
 - ✓ Orders, notices, advisory circulars, job aids and safety assurance system (SAS) Data Collection Tools (DCTs)
 - ✓ Laws, executive orders
- Recommend improvements to guidance documents to ensure they—
 - ✓ Annotate the applicable regulations, laws or executive orders—AMC.
 - ✓ Are numbered to establish a relationship between the guidance and the underlying regulation—AMC
 - ✓ Communicate agency expectation of compliance to the public and FAA workforce in a comprehensive and consistent manner, with tools to ensure application and evaluation is based on performance-based oversight—AMC
 - ✓ Account for oversight of repair stations vis-à-vis amount, type, scope and complexity of the certificate holders' work and its size—recommendation for applying the appropriate “weight” to DCT elements will be in final report.
 - ✓ Align with regulations, laws and executive orders—laws, regulations, executive orders, legal interpretations in AMC.
- Develop a preliminary and final report containing the recommendations—in progress.

SCHEDULE

- Received six (6) month extension to align with June ARAC meeting.
- Preliminary report was submitted 24 months from the first meeting of the Part 145 Working Group (approved by ARAC December 2020).
- Final report will be submitted no later than 12 months after the preliminary report is forwarded to the FAA by ARAC (with extension, May 13, 2021) = In work.
- Task group of FAA representative, Co-Chairs, and interested industry representatives have regular meetings to—
 - ✓ Draft final report, and
 - ✓ Work on AMC

STATUS OF TASKING

- Developing final report.
- Developing recommendation document that puts regulatory compliance information in one place so interrelationships can be shown and taught—
 - Evaluated International Civil Aviation Authority “best practices”
 - Included FAA/CAA historical documents
 - Using ARAC Working Group agreed upon structure

STATUS OF TASKING

- ARAC Working Group agreed upon structure:
 - Numbering is 145-1-A-X-X followed by the regulation copied verbatim from 14 CFR
 - Scope—the legal authority or intent expressed by the plain language.
 - Acceptable Means of Compliance—the parameters and expectations of the showing and finding of compliance.
 - Guidance Material—FAA unique information which will not repeat what is contained in the Acceptable Means of Compliance.
 - Related Regulations—regulations directly and indirectly related to the Acceptable Means of Compliance with no more than a sentence explaining why the section or paragraph is being referenced.
 - Additional Information—legal opinions or interpretations and other historical references that explain or illustrate the verbiage in Scope, Acceptable Means of Compliance, and Guidance Material.

AREAS of ARAC CONSIDERATION

None.

Training Standardization Working Group Status Report to the Aviation Rulemaking Advisory Committee



Brian Koester

Working Group Chair

December 09, 2021

MEMBERS of Training Standardization Working Group

Jon	Dodd	Coalition of Airline Pilots Associations
Steve	Hall	FlightSafety International
Aimee	Hein	CAE, Inc.
Jens	Hennig	General Aviation Manufacturers Association
Brian	Koester*	National Business Aviation Association
Doug	Carr	National Business Aviation Association
Todd	Lisak	Air Line Pilots Association
Steve	Maloney	Sun Air Jets
Allan	Mann	Wheels Up, LLC
John	McGraw	National Air Transportation Association
Brian	Neuhoff	Airbus Helicopters
Janine	Schwahn	Summit Aviation, Inc.
Annmarie	Stasi	Northwell
Daniel	Von Bargaen	Jet Aviation Flight Services, Inc.
Mike	Walton	Textron

FAA Partners

Josh Tarkington

Paul Preidecker

Tim Vander Ploeg

Shannon Salinsky

Mariellen Couppee

Kevin Hancock

* Training Standardization Working Group Chair

SUMMARY OF TASKING

The Training Standardization Working Group (TSWG) will provide advice and recommendations to the ARAC on the most effective ways to standardize curricula provided by training centers. The group is tasked with the following:

- ✓ Recommend a detailed master schedule for the development of part 135 standardized curricula for each aircraft or series of aircraft;
- ✓ Develop and recommend a standardized curriculum to qualify training center instructors and evaluators (check pilots) to provide part 135 training, testing, and checking;
- 3) Develop and recommend part 135 standardized curricula for each aircraft or series of aircraft, including the maneuvers, procedures, and functions to be performed during training and checking;
- 4) Recommend continuous improvements to each part 135 standardized curriculum for a specific aircraft or series of aircraft; and
- 5) Develop reports containing recommendations for standardized curricula and results of the tasks listed here. The group should review any relevant materials to assist in achieving their objective, including FAA Advisory Circular 142-1,2 Standardized Curricula Delivered by Part 142 Training Centers.

SCHEDULE

- ✓ June 2021 – Deadline for submitting initial recommendation report including the proposed master schedule for standardized curriculum development to ARAC. The deadline to submit the interim report to the FAA is June 30, 2021.
- ✓ December 2021 – Deadline for submitting the addendum recommendation report, including a standardized curriculum to qualify training center instructors and check pilots to provide part 135 training, testing, and checking to ARAC. The deadline to submit the interim report to the FAA is December 31, 2021.
- If unable to meet the abovementioned deadlines, the TSWG Chair will recommend that ARAC request an extension from the FAA.
- The Training Standardization Working Group may submit ad hoc recommendation reports, including continuous improvements, to standardized curricula, via ARAC to the FAA for review and consideration at any time.

STATUS OF TASKING

- Milestones:
 - TSWG has created Action Team breakout groups with specific tasking assignments, such as:
 - Regulatory Analysis
 - Aircraft-Specific Curriculum
 - Instructor and Check Pilot Qualification
 - Continuous Improvement
 - Instructional System Design (ISD)
 - The voting members of the TSWG meet monthly, with Action Teams meeting on a weekly basis in between.
 - Tasking 1 (schedule) and 2 (instructor curriculum) are complete.
 - Anticipate first curriculum recommendation at the March ARAC meeting

AREAS of ARAC CONSIDERATION

- The ISD action team
 - Completed their training needs analysis
 - Started an SOP sub team
- Continuous Improvement Action Team is developing a framework document to:
 - Determine data-driven methods and element criteria to identify program effectiveness to make recommendations for continuous improvement
 - Identify methods for ongoing SC maintenance and development (who, how, when/triggers for revisions)

TSWG G-V Action Team Tasks:



Action Team:	Team Lead	Participants:
G-V	Preidecker	Ruthenbeck, Neubert, Djordjevic, Mika, Emmert, Goldman, Emig, Pangalangan, Hancock

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
 - Review TNA
 - Review FSBR
 - Review relevant OpSpecs/MELs
 - Review existing 142 training programs
2. Based on the templates and best practices established by the TSWG Develop and recommend the following curricula, including planned hours, for each aircraft fleet:
 - Initial New Hire,
 - Standard Recurrent,
 - Requalification,
 - Upgrade Recurrent, and
 - Scenario Enhanced Recurrent Training.
3. Each Type Specific Action Team will develop the following based on the templates and best practices established by the TSWG, to be used throughout the standardized training program and during normal operations:
 - SOPs
 - Call outs
4. Draft and submit the recommendation report based on the assigned tasks.
5. Present the recommendation report at the TSWG meeting.
6. Provide continuous improvement for the standardized curriculum based on recommendations from the TSWG.

Transport Aircraft and Engines
Subcommittee
Status Report to the
Aviation Rulemaking Advisory Committee

Keith R. Morgan
Subcommittee Chair

9 Dec. 2021

Members of the Transport Aircraft and Engines Subcommittee

Pratt & Whitney

ALPA

A4A

ASD

Airbus

Boeing

GAMA

AIA

Bombardier

NADA/F

Embraer

SRCA

TAE Meeting Schedule

- 2021 Meetings
 - January 26, 2021
 - February 11, 2021 (Ad hoc)
 - April 27, 2021
 - July 27, 2021
 - October 26, 2021
- 2022 Meetings
 - January 25, 2022
 - April 26, 2022
 - July 26, 2022
 - Oct. 25, 2022

Active Working Groups

- Flight Test Harmonization
- Transport Aircraft Metallic and Composite Structures
- Engine Ice Crystal Icing
- Avionic Systems Harmonization

Look Ahead Report Submittal Schedule to ARAC

- March 2022
 - TAMCSWG Crack Interaction

- September 2022
 - EICIWG Interim report
 - FTHWG TALPA
 - FTHWG Dry Runway

- December 2022
 - ASHWG Ground Spoiler Alerting

Flight Test Harmonization Working Group
Status Report to the
Transport Aircraft and Engines Subcommittee
of the
Aviation Rulemaking Advisory Committee

Brian P. Lee, Boeing
Laurent Capra, Airbus
Working Group Co-Chairs

26 October, 2021

MEMBERS of Flight Test Harmonization Working Group Phase 4

Authorities	OEM's			Observers
FAA Bob Stoney Paul Giesman (sponsor)	Airbus Philippe Genissel + SME's	Embraer Murilo Ribeiro + SME's	ATR Matthieu Ollivier Jean-Pierre Marre +SME's	JCAB (Japan) Shinsuke Yamauchi Teruke Koike
				CAAI (Israel) Yshmael Bettoun
EASA Matthias Schmidt	Boeing Matt Muehlhausen + SME's	Gulfstream Mike Watson +SME's	Airbus Canada Scott Black Joel Boudreault +SME's	Norwegian Airlines John Lande
				Operations SME David Anvid
Transport Canada Lee Fasken	Bombardier Tony Spinelli +SME's	Textron Kurt Laurie +SME's	DeHavilland Canada Eric Herrmann +SME's	Centre d'Essais en Vol Francois MEIGNIEN
				Operators
ANAC (Brazil) Marcos Carvalho	Dassault Philippe Eichel +SME's			ALPA John Cinnamon Josh Larson

STATUS OF TASKING

- Tasking for Phase 4 Received in December, 2020
- Planning for the 6 tasks is complete
- Work is under way

- ASHWG: Low Energy Alerting
 - There will be fall-out from the ASHWG Recommendation
 - FTHWG Phase 2 recommended
 - Low Energy Alerting for all phases of flight only for neutral-stability configurations
 - ASHWG recommends
 - Low Energy Alerting only for close-to-ground for all configurations
 - We have put this on our calendar to be worked in Phase 4

Phase 4 FTHWG Topic Technical Status

- Topic #16 Failure Assessment Methodology & Evaluation (FAME)
 - Progress has been challenged by Covid
 - Detailed topic planning is complete and agreed
 - FAA/Boeing leaders have plan in place for in-person kickoff in March 2011 with required specialists.
- Topic # 21 Narrow runway operations
 - Team has converged on the definition a “baseline” runway
 - Now debating appropriate “regulatory hook” to require a declaration of runway width
 - Next moving on to what will be required for “narrower than baseline”
- Topic # 32 TALPA (time of arrival performance)
 - Group is continuing progress on harmonized guidance for takeoff and landing information to be furnished in the AFM.
 - Proposing harmonized language on reverse thrust performance credit.
 - Draft report is in work and are not anticipating dissent resolving remaining issues.
 - FAA topic leader nearing retirement, Airbus/Boeing representatives will lead topic to conclusion.
- Topic # 33 Landing Distance on Dry Runway (dispatch)
 - Most technical issues to define AFM landing distance to be more consistent with typical operations have been addressed.
 - Remaining issues include
 - potential AFM factor on braking μ to account for paint and rubber on runway,
 - how to address non-Part 121 operations, and
 - the need to redefine and implement new operational factors outside scope of the AFM, as part of the overall solution.

Coronavirus Accommodation

- Quarterly (face-to-face) meetings
 - Evaluated with decision gate at ~T-6 weeks
 - Have gone virtual since June, 2020
 - Replace 5-days of 8-hour face-to-face with 5 days of 3 hour virtual meetings
 - Not nearly as efficient
 - Less time
 - Communication is not as good (no body language, etc.)
- Sept, 2021 meeting (Cologne) is now planned to be virtual
- December, 2021 (Melbourne) is now planned to be virtual
- Next face-to-face now planned for Cologne, March 2022
- Implications:
 - Lost hours (vis-à-vis planning)
 - SME travel budget implications raise concerns as schedules shift

FTHWG Phase 4 Meeting Plan

(Accommodating Coronavirus...Requesting Report to TAE from Red to Blue Stars)
 Delivery to ARAC in following quarter, Green Stars

	Dassault Bordeaux	Boeing Seattle Virtual	Easa Cologne Virtual	FAA Seattle Virtual	Airbus Toulouse Virtual	Boeing Seattle Virtual	EASA Cologne Virtual	Embraer Melbourne Virtual	Easa Cologne	TCCA Ottawa (tbc)	Airbus Toulouse	Textron Wichita	Dassault Paris	Boeing Seattle / Everett	ATR (TBC)	FAA (Location TBD)	Easa Cologne (TBC)	Airbus Canada (TBC)	
	March 2020 (2-6)	June 2020 (8-12)	Sept. 2020 (14-18)	Dec. 2020 (7-11)	March 2021 (1-5)	June 2021 (7-11)	Sept. 2021 (13-17)	Dec. 2021 (6-10)	March 2022 (7-11)	June 2022 (6-10)	Sept. 2022 (12-16)	Dec. 2022 (5-9)	March 2023 (6-10)	June 2023 (5-9)	Sept. 2023 (11-15)	Dec. 2023 (4-8)	March 2024 (4-8)	June 2024 (3-7)	
Topic #16 HQRM FAME																			
Topic # 32 TALPA (time of arrival performance)																			
Topic # 33 Landing Distance on Dry Runway (dispatch)																			
Topic # 21 Narrow runway operations																			
Topic # 22 Derate thrust procedures																			
Topic # 26 Landing in abnormal configurations																			
ASHWG Low Speed Alert																			

Buffer & Finalization of Phase V preparation

Started work ahead of tasking

Formal Tasking Period

+ Single-topic telecom each week

- ★ Previous Recommendation report to TAE
- ★ Recommendation Report to TAE to meet tasking requirements to ARAC

- Mostly HQ Specialists
- Mostly Performance Specialists

AREAS for ARAC CONSIDERATION

- Task Schedule Extension
 - Covid mitigation has significantly reduced productivity despite diligent work efforts
 - Asking for 3-month extension of tasking period for TALPA and RLD Dry
 - Asking for 6-month extension of tasking period for other tasks
- Meeting Support Budgets
 - FAME topic requires broad SME support, particularly from Authorities
 - Asking for budget flexibility as our face-to-face meeting plans move around
- Our FAA sponsor (and TALPA topic leader and Performance SME) is to retire in December with several weeks of medical leave between now and then.
 - These topics are complex and have significant historical context
 - A replacement must be given adequate time and involvement to “spin up” on these topics
 - While a replacement has been hired (from outside of FAA), he’s not on-board yet.

AREAS for ARAC CONSIDERATION

- FAME is a very important, multi-disciplinary topic which has caused confusion and has been dis-harmonized for a very long time. We want very much to “get it right” this time.
- Working Group leadership has worked hard to:
 - Allow appropriate time for deliberation
 - Schedule meetings and meeting venues which will maximize multi-disciplinary participation (both from FAA and from EASA; also TCCA, and ANAC and the industry participants)
 - With COVID forcing virtual (less productive) meetings, we considered many options
 - Change of venues, swapping meeting venues, addition of “extra” meetings to accommodate FAME SME’s
- The best approach **was** a face-to-face kick-off in Europe, following up with the December face-to-face in the US, but we need the systems safety and other specialists at these meetings
 - By “kick-off” we mean with the expanded SME participation; FTHWG has been meeting on this topic virtually since January.
- COVID limitations are forcing a flip-flop of planned meetings, but all participants need to budget appropriately for those contingencies
 - A Cologne meeting would have allowed EASA specialists to attend; moving that kick-off to December will now require EASA SME’s to travel, which has not been budgeted. It is very important for harmonization that we have appropriate representation across authorities and across disciplines.
 - We are seeking some budgetary flexibility as we progress these topics while accommodating health and safety considerations.
- Our FAA sponsor (and TALPA topic leader and Performance SME) is to retire in December. TALPA recommendation report is due to TAE in March.
 - These topics are complex and have significant historical context
 - A replacement must be given adequate time and involvement to “spin up” on these topics

Transport Airplane Metallic and Composite Structures Working Group

*Recommendation Report, Extension Topics,
Briefing to the TAE – October 2021 meeting*

Doug Jury (Delta Air Lines)

Working Group Chair

October 26, 2021

Members of the Working Group

- Industry WG voting members:
 1. Kevin Davis (Boeing)
 2. Chantal Fualdes (Airbus)
 3. Salamon Haravan (soon to retire – to be replaced by Pascal Lortie) (Bombardier)
 4. Benoit Morlet (Dassault Aviation)
 5. Antonio Fernando Barbosa (Embraer)
 6. Kevin Jones (Gulfstream)
 7. Toshiyasu Fukuoka (Mitsubishi Aircraft)
 8. David Nelson (Textron Aviation)
 9. Ryan Higgins (British Airways)
 10. Doug Jury (Delta Air Lines) –Chairperson
 11. Mark Boudreau (FedEx)
 12. Eric Chesmar (United Airlines)
- NAAs: FAA (Walt Sippel, Larry Ilcewicz, Michael Gorelik, Patrick Safarian, Linda Jahner, Greg Schneider); EASA (Richard Minter, Simon Waite); ANAC (Pedro Caldeira, Marco Villaron, Fabiano Hernandes); TCCA (Jackie Yu, Natasa Mudrinic); JCAB (Hiroshi Komamura); Phil Ashwell (CAA)
- General public, non-voting participants: Allen Fawcett (retired, former SME participant), Mike Gruber (retired, former WG member & chair)

SUMMARY OF ORIGINAL TASKING

With the increased use of composite and hybrid structures recommendations regarding revision of the **fatigue and damage-tolerance requirements** & associated guidance material were previously provided in Final Report, dated 6/27/2018

Tasking was divided up into the following 12 focus areas:

1. Threat Assessment
2. Emerging material technology
3. Inspection Thresholds
4. Structural Damage Capability – Fail-safety
5. Aging, WFD & LOV (including ultimate strength & full-scale fatigue test evidence)
6. Testing (related to composite and hybrid materials including WFD test demonstration)
7. Repairs (bonding / bolting)
8. Modifications
9. EASA aging aircraft rulemaking and harmonization
10. Rotorburst
11. Disposition of cracking during full-scale fatigue testing
12. Accidental damage inspections included in the ALS conflicts w/ MSG-3 program

During final report submission and review by ARAC in September, 2018 three separate topics were raised as needing further evaluation and recommendation from this existing WG.

SUMMARY OF TASKING – extended topics

Three additional items for rule & guidance recommendation development

1. Structural Damage Capability (SDC) for Single Load Path (SLP) structure (completed):
 - Develop requirements and guidance material for single load path (SLP) structure, which by definition has no SDC
 - ARAC approved this report on 12/10/2020
 - **Minor revision required due to final recommendations in Structural Bond report – expect to have to TAE week of 10/25.**
2. Structural Bonding and “Weak Bonds” (completed):
 - FAA requests further clarification from the working group on how to address disbonds and weak bonds as a manufacturing defect
 - **ARAC approved this report on 6/17/2020**
3. Repeat Inspections & Crack Interaction
 - Advisory Circular 91-82A provides evaluation considerations for establishing inspection thresholds and repeat intervals, including consideration of crack interaction with little guidance in AC. Based on this, the FAA is requesting information from the working group on how to address crack interaction when establishing inspection programs.

SUMMARY OF TASKING – extended topics (continued)

Item 3: Crack interaction

- Team direction:
 - Rule change:
 - No – general consensus position as of now
 - Currently ~~one~~ two dissenting positions related to harmonization with EASA rule language
 - Guidance changes:
 - WG agreement on need for change, but no consensus on extent of clarification needed in guidance.
 - Will likely be two sets of recommendations – each supported by rationale by subset of WG team
 - Based on observed roadblocks, FAA has provided feedback to sub-team as to what items they would like to see addressed in report.
 - Latest attempt to draft report to capture the above has been prepared by WG member submitted to smaller team for initial review. Work has progressed in development of a draft report in review and editing process with comments & edits prepared by core team
 - One proposal under consideration now is to propose further technical guidance (potential MoC) to be developed by an industry standards organization
- ARAC agreeable to presenting this report at March 2022 meeting.
 - Core team has prepared a target report drafting & review milestone schedule to meet the next TAE scheduled meeting.
 - Targeting second week of Jan, 2022 to have draft ready for TAE review.

Deliverable & Schedule

Deliverable: three reports containing:

- Recommendations on appropriate performance-based requirements
- Recommendations on any new guidance or changes to existing guidance
- Qualitative and quantitative costs and benefits of the recommendations

Milestones ^[1]:

- | | |
|--|--------------------------------|
| • TAE Status 2 | March 2019 |
| • WG face to face meeting (San Francisco) | April 2019 |
| • TAE Status 3 | May 2019 |
| • Second Face to Face, ATL | Oct 2019 |
| • Three recommendation reports – submitted to TAE | |
| • 1: Structural Damage Capability – Single Load Path | Oct/Nov 2020 DONE |
| • 2: Structural Bonding | Mid 2021 SUBMITTED to TAE DONE |
| • 3: Crack Interaction | Early 2022 |

^[1] May find impact to WG member availability to participate due to COVID-19 related business decisions (furloughs, leave of absences, etc.)

Meeting cadence:

- *Sub-teams (including NAA representatives) would meet more frequently*
- *Bi-weekly progress meetings (virtual) with FAA*
- *Full WG meetings (virtual) – monthly or as needed*

Ice Crystal Icing Working Group Status Report Transport Aircraft and Engines Subcommittee

Melissa Bravin

Allan van de Wall

Working Group Co-Chairs

08 November 2021

MEMBERS of ICI WG

Member Name	Organization	Role
Alan Strom	(FAA-ANE Standards) <u>FAA Representative</u>	FAA Representative
Philip Haberen	(FAA-ANE Standards) <u>FAA Representative</u>	FAA Representative
Keith Morgan	Pratt & Whitney	ARAC Representative
Melissa Bravin	Boeing Commercial Airplanes	WG Co-Chair – Airplane – P
Allan van de Wall	GE Aviation	WG Co-Chair – Engine – P
Tom Dwier	Textron Aviation	Airplane – P
Pierre-Emmanuel Arnaud	Airbus	Airplane – P
Bryan Lesko	Air Line Pilots Association	Other – P
Josh Larson	Air Line Pilots Association	Other - P
Jon Saint-Jacques	A4A/Atlas Air	Other – P
David Dischinger	Honeywell	Engine – P
Keith Wegehaupt	Honeywell	Engine – P
Jim Loebig	Rolls-Royce	Engine – P
Roberto Marrano	Pratt & Whitney Canada	Engine – P
Shengfang Liao	Pratt & Whitney East Hartford	Engine – P
Roxanne Bochar	Pratt & Whitney	Engine – P
Aaron Cusher	Collins	Other - P

Member Name	Organization	Role
Philip Chow	FAA	Consultant
Jeanne Mason	FAA	Consultant
Walter Strapp	Met Analytics Inc.	Consultant
Dan Fuleki	National Research Council Canada	Consultant
Ashlie Flegel	NASA	Consultant
Tom Ratvasky	NASA	Consultant
Terry Tritz	Boeing	Consultant
Adam Malone	Boeing	Consultant
Bob Hettman	FAA	Non-voting role
Doug Bryant	FAA	Non-voting role
Eric Duvivier	EASA	Non-voting role
Julien Delanoy	EASA	Non-voting role
Fausto Enokibara	ANAC	Non-voting role
David Johns	TCCA-probes	Non-voting role
Eric Fleurent-Wilson	TCCA-engines	Non-voting role
Masato Fukushi	JCAB	Non-voting role
John Fisher	FAA	Non-voting role
Mauricio Caio Rosin	TCCA	Non-voting role

SUMMARY OF TASKING

- The ICIWG will provide advice and recommendations to the ARAC through the TAE Subcommittee on Appendix D to Part 33, and harmonization of §33.68 *Induction System Icing* requirements as follows:
 1. Evaluate recent ICI environment data obtained from both government and industry to determine whether flight testing data supports the existing Appendix D envelope.
 2. Evaluate the results carried out in Task 1 and recommend changes to the existing Appendix D envelope, as required. Examine how compliance with §33.68(e) and §25.1093(b)(1) can be shown to demonstrate that at the airplane level, engine effects that could prevent the continued safe flight and landing of the airplane during encounters in ice crystal icing conditions would be extremely improbable (10^{-9}). If that cannot be shown, recommend changes to the text of §33.68 or §25.1093 (or a combination of both) that would provide the level of safety described by §25.1309(b)(1).
 3. Compare available service data on air data probes from both government and industry probes on Appendix D, including any changes proposed in Task 2. Determine whether engine or aircraft data probe responses warrant the use of a different environmental envelope from those proposed in Task 2, or to the existing Appendix D envelope.
 4. Evaluate the results from Task 3 and recommend ICI boundaries relevant to aircraft and engine air data probes. If the working group proposes a different envelope for aircraft and engine air data probes, recommend if these should be included in the existing Appendix D, or create a new appendix to Part 33.
 5. Identify non-harmonized FAA or EASA ICI regulations or guidance. If the working group finds significant differences that impact safety, propose changes to increase harmonization that may also include icing environments other than Appendix D as a secondary objective.
 6. Recommend changes to the Advisory Circular AC20-147a, *Turbojet, Turboprop, Turboshift and Turbofan Engine Induction System Icing and Ice Ingestion*, based on Task 1 through 5 results.
 7. Assist the FAA in determining the initial qualitative and quantitative costs, and benefits that may result from the working group's recommendations.
 8. Develop a recommendations report containing the results of tasks 1 through 6. The report should document both majority and dissenting positions on the findings, the rationale for each position, and reasons for disagreement.

SCHEDULE

- Biweekly teleconferences through 2021
 - Tentative F2F January 2022, dependent on COVID-19 restrictions
- July 2022: WG submits an interim report to FAA
- Summer 2022: FAA conducts flight campaign, processes data
- January 2023: WG reconvenes to assess flight campaign data
- December 2023: WG submits a final report to FAA

STATUS OF TASKING

Complete:

- Appendix D Altitude-Temperature envelope to be extended to -90 C / ~FL550 to accommodate business jets (Task 1, 2)
- Appendix D TWC-Altitude envelope “cold side” (upper left-hand portion) will be scaled from adiabatic down to TBD scalar where flight campaign data exists (Task 1, 2)
- FAA funding approved to conduct high aerosol flight campaign off coast of Japan to assess TWC levels in polluted environments; 99th percentile TWC values may be affected (Task 1, 2)

To Do:

- Complete Task 2 (winter convection, oceanic vs. continental, peak TWC)
- Joint Probability Analysis study (Task 2)
- 90% complete: industry probe ICI event analysis (Task 3)
- Discuss non-harmonized FAA / EASA ICI regulations / guidance (Task 5)
- AC 20-147A update recommendations (Task 6)
- Assist FAA in determining cost / benefit analysis based on WG recommendations (Task 7)
- Develop ARAC report (Task 8)

AREAS of ARAC CONSIDERATION

- None

Avionics Systems Harmonization Working
Group (ASHWG)
Status Report to the
Aviation Rulemaking Advisory Committee

Clark Badie

Working Group Chair

26 October 2021

MEMBERS of ASHWG

Dave Leopold	Boeing	David.D.Leopold@boeing.com
Chris Heck	ALPA	Chris.heck@alpa.org
Marshall Ekstrand	ALPA	Marshall.Ekstrand@alpa.org
Remy Dayre	Airbus	remy.dayre@airbus.com
Janiece Lorey	Gulfstream	janiece.lorey@gulfstream.com
Robin Brulotte	Transport Canada	Robin.brulotte@tc.gc.ca
Kajetan Litwin	Transport Canada	Kajetan.Litwin@tc.gc.ca
Marcelo de Lima Camargo	Embraer	macamargo@embraer.com.br
Loran Haworth	NASA	loran.a.haworth@nasa.gov
Bob Stoney	FAA	robert.stoney@faa.gov
Clark Badie	Honeywell	Clark.badie@Honeywell.com
Doug Jacobs	Boeing	douglas.t.jacobs@boeing.com
Alex Rummel	Gulfstream	Alex.Rummel@gulfstream.com
Benoit Berthe	ATR	BENOIT.BERTHE@atr-aircraft.com
Damien Roujas	ATR	DAMIEN.ROUJAS@atr-aircraft.com
Jean Baron	EASA	jean.baron@easa.europa.eu

Note: Mr. Jacobs to replace Mr. Bourgeois as the representative from Boeing

SUMMARY OF TASKING

- Advise on the use of an alert when ground spoilers are not armed for landing in light of related incidents and accidents.
- Reference from the tasking statement:
 - There has been a history of landing incidents and accidents where the automatic ground spoilers were not armed, in addition to the subsequent reduction in wheel-braking effectiveness as well as drag reduction.
 - This has been a significant contribution to runway overruns. One example occurred on April 26, 2011, when a Southwest Airlines Boeing 737-700 went off the end of the runway at Chicago Midway International Airport. This task is also related to NTSB safety recommendations following the December 29, 2010, American Airlines Flight 2253 runway overrun accident at Jackson Hole Airport, Wyoming.

SPECIFIC TASKING QUESTIONS

1. Are the existing industry standards or guidance material sufficient, or do you recommend any new or revised industry standards or guidance material to provide acceptable automatic ground spoiler alerts for the flightcrew in cases where the airplane is prepared to land (for example, when the airplane drops below an appropriate height above the runway), but the automatic ground spoilers are not armed? The recommendations should ensure there is enough flexibility to cope with potentially different aircraft designs.
2. Are the existing alerting standards in 14 CFR part 25 sufficient, or do you recommend changes to the existing alerting requirements?
3. After reviewing airworthiness, safety, cost, and other relevant factors including recent certification and fleet experience, are there any additional considerations that the FAA should take into account regarding avoidance of landing without ground spoilers armed?
4. Is coordination necessary with other harmonization working groups? If yes, coordinate with that working group and report on that coordination.

SCHEDULE

- Initial meeting held February, 2021
- Monthly meetings will be needed to facilitate the discussion needed to complete this task. Telecons and electronic correspondence will be used to the maximum extent possible.
 - Meeting periodic (monthly, with ad-hoc exchanges) has impacted efficiency vs one or more multi-day face to face meetings.
- Planned completion: Q3 2022

STATUS OF TASKING

- The ASHWG has reviewed additional information to help characterize the relationship between runway overruns and aircraft equipped with ground spoilers/speed brakes (GS/SB), and whether they were armed prior to landing.
- Also evaluated other circumstances related to runway overrun contributions.
- Consensus is to recommend a new rule (9 yes, 2 no)
- Two votes for ‘no’ with the following comments:
 - Existing guidance material can be modified to encompass the topic (which goes beyond—but might include—a simple alert concerning GS/SB...either prior to landing...ie crew omission....or after landing due to crew omission or system failure).
 - Addressing the potential safety benefit of introducing a ‘landing alert’; which should integrate more than just ground spoiler function. A key finding in the team’s research centered around multiple contributors to runway overruns (more than GS/SB issues).
- To help establish a baseline, the working group identified a ‘similar to’ rule and AC to use as a template for reference (§ 25.703 Takeoff warning system)

Recommended approach and next steps:

067

Develop a 'Landing Alerting' rule 25.704 and advisory material (AC 25-704) which is non-prescriptive to implementation

- Include ground spoilers/speed brakes specifically, when required for landing
 - This is consistent with Ref: FTHWG Task 9 Wet Runway Stopping Performance Final Report, March 16, 2018
- Consider how to accommodate growth for other methods that may equally mitigate the potential for a runway overrun (for example, what about thrust reversers?). Different aircraft may depend on different methods.
 - Document those other considerations in the report, and recommend a follow up task to improve in the future (addresses tasking question #3).

Recommend EASA CS 25.705 - Runway Overrun Awareness and Avoidance System (ROAAS) – for FAA harmonization (**as-is**).

- Ref: FTHWG Task 9 Wet Runway Stopping Performance Final Report, March 16, 2018

AREAS of ARAC CONSIDERATION

None at the moment

Ex Parte Communications

***Ex Parte* Communication in Informal Rulemaking:**

- (i) written or oral communication;
 - (ii) regarding the substance of an anticipated or ongoing rulemaking;
 - (iii) between the agency personnel [and/or decision makers] and interested persons; and
 - (iv) that is not placed in the rulemaking docket at the time they occur.
- (ACUS Recommendation 2014-4)

***Ex Parte* Communications Might Occur:**

Pre-NPRM

Comment period

Post-comment period

Ex Parte Communications

DOT/FAA “Rules of the Road”

Conduct outreach and provide access equitably to stakeholder groups and provide robust opportunities for discussion early in, and throughout, the rulemaking process.

Ensure that outreach includes providing adequate opportunities for stakeholders who may not have access to extensive legal and lobbying support.

Tools to Support Public Engagement

ARCs and SpARCs

Public Meetings

Comment Period

Ex Parte Communications

49 C.F.R. 5.5

§ 5.5 Public contacts in informal rulemaking.

(a) Agency contacts with the public during informal rulemakings conducted in accordance with 5 U.S.C. 553.

- (1)** DOT personnel may have meetings or other contacts with interested members of the public concerning an informal rulemaking under 5 U.S.C. 553 or similar procedures at any stage of the rulemaking process, provided the substance of material information submitted by the public that DOT relies on in proposing or finalizing the rule is adequately disclosed and described in the public rulemaking docket such that all interested parties have notice of the information and an opportunity to comment on its accuracy and relevance.
- (2)** During the pendency of a rulemaking proceeding, DOT personnel must avoid giving persons outside the executive branch information regarding the rulemaking that is not available generally to the public.
- (3)** If DOT receives an unusually large number of requests for meetings with interested members of the public during the comment period for a proposed rule or after the close of the comment period, the issuing OA or component of OST should consider whether there is a need to extend or reopen the comment period, to allow for submission of a second round of “reply comments,” or to hold a public meeting on the proposed rule.
- (4)** If the issuing OA or OST component meets with interested persons on the rulemaking after the close of the comment period, it should be open to giving other interested persons a similar opportunity to meet.
- (5)** If DOT learns of significant new information, such as new studies or data, after the close of the comment period that the issuing OA or OST component wishes to rely upon in finalizing the rule, the OA or OST component should reopen the comment period to give the public an opportunity to comment on the new information. If the new information is likely to result in a change to the rule that is not within the scope of the notice of proposed rulemaking (NPRM), the OA or OST component should consider issuing a supplemental NPRM to ensure that the final rule represents a logical outgrowth of DOT's proposal.

Ex Parte Communications

DOT Order 2100.6A

11. PUBLIC CONTACTS IN INFORMAL RULEMAKING

OAs and OST components are encouraged to conduct outreach and provide access equitably to stakeholder groups and provide robust opportunities for discussion early in, and throughout, the rulemaking process. OAs and OST components should ensure that outreach includes providing adequate opportunities for stakeholders who may not have access to extensive legal and lobbying support. Agency contacts with the public during informal rulemakings shall be conducted in accordance with section 553 of title 5, United States Code, and 49 CFR 5.5.